Life Cycles

Grade Level or Special Area: 2nd Grade, Science
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Length of Unit: Eight lessons, approximately 30 minutes each

I. ABSTRACT
In this unit, students will study the stages that make up the life cycle of living things. They will specifically look at the life cycle of the butterfly, frog, chicken, and plant. Students will make models of these life cycle stages in order to better understand them.

II. OVERVIEW
A. Concept Objectives
1. Students will understand the life cycle of all living things.
2. Students will understand the sequence of the life cycle stages of butterflies, frogs, chickens, and plants.
3. Students will understand the changes that take place as butterflies, frogs, chickens, and plants grow from birth to adult.

B. Content from the Core Knowledge Sequence
1. Second Grade Science: Cycles in Nature
   a. Life Cycles
      i. The life cycle: birth, growth, reproduction, death
      ii. Reproduction in plants and animals
          a) From seed to seed with a plant
          b) From egg to egg with a chicken
          c) From frog to frog
          d) From butterfly to butterfly: metamorphosis

2. Second Grade Language Arts: Poetry
   a. Caterpillars (Aileen Fisher)

C. Skill Objectives
1. Students will identify and sequence the life cycle stages of all living things.
2. Students will identify and sequence the life cycle stages of a butterfly.
3. Students will create a model of the life cycle stages of a butterfly.
4. Students will identify and sequence the life cycle stages of a frog.
5. Students will design a model of the life cycle stages of a frog.
6. Students will identify and sequence the life cycle stages of a chicken.
7. Students will piece together a mobile of the life cycle stages of a chicken.
8. Students will identify and sequence the life cycle stages of a plant.
9. Students will make a poster of the life cycle stages of a plant.
10. Students will work together to discuss the answers to questions about concepts taught throughout the unit.

III. BACKGROUND KNOWLEDGE
A. For Teachers
   1. What Your Second Grader Needs to Know by E.D. Hirsch, Jr.

B. For Students
   1. Kindergarten Science: Plants and Plant Growth
      a. What plants need to grow: sufficient warmth, light, and water
      b. Basic parts of a plant: seed, root, stem, branch, leaf
   2. Kindergarten Science: Animals and Their Needs:
      a. Animals, like plants, need food, water, and space to live and grow.
b. Offspring are very much (but not exactly) like their parents.
c. Most animal babies need to be fed and cared for by their parents; human babies are especially in need of care when young.

3. First Grade Science: Living Things and Their Environments: Habitats
   a. Living things live in environments to which they are particularly suited.

IV. RESOURCES
   A. *Life Cycles* by Peter Riley (Lesson One)
   B. *A Butterfly's Life* by Melissa Blackwell Burke (Lesson One)
   C. *The Life Cycle of a Frog* by John Williams (Lesson Three)
   D. *Frogs* by Gail Gibbons (Lesson Three)
   E. *Chicks and Chickens* by Gail Gibbons (Lesson Five)
   F. *The Life of a Chicken* by Clare Hibbert (Lesson Five)
   G. *How a Plant Grows* by Bobbie Kalman (Lesson Six)

V. LESSONS
   Lesson One: The Life Cycle (30 minutes)
   A. Daily Objectives
      1. Concept Objective(s)
         a. Students will understand the life cycle of all living things.
         b. Students will understand the sequence of the life cycle stages of butterflies, frogs, chickens, and plants.
         c. Students will understand the changes that take place as butterflies, frogs, chickens, and plants grow from birth to adult.
      2. Lesson Content
         a. Life Cycles
            i. The life cycle: birth, growth, reproduction, death
            ii. Reproduction in plants and animals
               a) From butterfly to butterfly: metamorphosis
      3. Skill Objective(s)
         a. Students will identify and sequence the life cycle stages of all living things.
         b. Students will identify and sequence the life cycle stages of a butterfly.
   B. Materials
      1. *Life Cycles* by Peter Riley
      2. Whiteboard and markers
      3. *A Butterfly's Life* by Melissa Blackwell Burke (or any other book that goes through the life cycle of a butterfly)
      4. Appendix A: The Life Cycle (one for each student)
      5. Appendix B: The Butterfly Life Cycle (one for each student)
      6. Transparency of Appendix B
      7. Overhead projector and markers
   C. Key Vocabulary
      1. A *life cycle* is a set of developmental stages that all living things go through from the beginning of their life to the end.
      2. *Reproduction* is the process by which organisms generate others of the same kind.
      3. *Metamorphosis* means a change in appearance and habit.
      4. The *larva* is the worm-like form of a newly hatched insect before metamorphosis.
      5. A *chrysalis* is a stage of development where the insect is enclosed in a cocoon.
6. **The pupa stage is when an insect is inactive in its cocoon or chrysalis.**
7. **An adult is a fully-grown mature organism.**

### D. Procedures/Activities

1. Tell the students that in this unit, they will be studying the life cycle stages all living things go through. Specifically, they will look at the life cycle of a butterfly, frog, chicken, and plant.
2. Tell the students that as you read the book *Life Cycles* by Peter Riley, they are to try and figure out what a life cycle is and what the four stages of the life cycle are that all living things go through. After reading the book, discuss it with the following questions.
   a. **What is a life cycle?** *(A life cycle is a set of changes that living things go through from birth to death.)* Tell the students it is called a cycle because it is a process that is repetitive in all living things.
   b. **The life cycles of what living things were looked at in this book?** *(Living things talked about in the book were people, plants, butterflies, amphibians, frogs, reptiles, birds, and mammals.)*
   c. **What life cycle stages do all these living things have in common?** *(They are born, grow, become adults and make more of themselves, and then die.)*
3. As you tell the students the four stages of the life cycle, list them on the board.
4. With the students, pick out a few of the living things mentioned in the book (especially humans) and discuss what stages of the life cycle these living things go through. Describe the characteristics of each stage of development.
5. Complete Appendix A with the students.
6. Tell the students that while all living things go through the stages of birth, growth, reproduction, and death, they can be very different in how they are born, how they grow, and how they reproduce. Many living things like humans, animals like cats and dogs, and insects like the grasshopper, look very much alike from birth to when they become adults. They simply grow larger. However, some insects and animals go through growing stages where they look completely different from birth to when they become adults. This is called metamorphosis.
7. Read a butterfly book that goes through the life cycle of a butterfly, such as *A Butterfly's Life* by Melissa Blackwell Burke.
8. Give the students Appendix B and tell them that they are going to think of what sentences to write on the lines to describe each stage of the butterfly's life as you reread the book. Make sure they do not write on the lines yet; they are to just think about what to write.
9. After rereading the book, discuss each stage. As a class, write a sentence(s) on the lines below each stage. Use the transparency of Appendix B to write down class answers. The following is a guideline for what to discuss with the students.
   a. **The first stage is the egg.** The butterfly lays a tiny egg on a leaf. Once the caterpillar hatches, it eats the shell and the leaf it was laid on.
   b. **The next stage is the larva or caterpillar.** During this stage, the larva/caterpillar is eating constantly and growing. It will do this for about two weeks.
   c. **In the third stage, the caterpillar forms a chrysalis around itself.** It is called a **pupa.** It will stay inside the chrysalis for about another two weeks while its body is changing.
   d. **In the last stage, the butterfly breaks out of its chrysalis.** It has become an **adult.** It will stay and flap its wings for a while to get the blood flowing through them and to dry out before it finally flies away. As an
adult, the butterfly can reproduce. Shortly before it dies, it will lay eggs, and the life cycle continues.

10. Tell the students to put this paper in a folder and take it home to study. There will be mini-quiz the following day on what they learned today. Remind the students that they also need to bring their folders back so that they can add more information to it during the week.

E. **Assessment/Evaluation**
1. Students will identify the stages of the life cycle using Appendix A.
2. Students will identify the life cycle stages of the butterfly using Appendix B.

**Lesson Two: Butterfly Life Cycle (30 minutes)**

A. **Daily Objectives**
1. **Concept Objective(s)**
   a. Students will understand the sequence of the life cycle stages of butterflies, frogs, chickens, and plants.
   b. Students will understand the changes that take place as butterflies, frogs, chickens, and plants grow from birth to adult.
2. **Lesson Content**
   a. **Life Cycles**
      i. The life cycle: birth, growth, reproduction, death
      ii. Reproduction in plants and animals
         a) From butterfly to butterfly: metamorphosis
   b. **Poetry**
      i. Caterpillars (Aileen Fisher)
3. **Skill Objective(s)**
   a. Students will identify and sequence the life cycle stages of a butterfly.
   b. Students will create a model of the life cycle stages of a butterfly.

B. **Materials**
1. Appendix C: Butterfly Quiz (one for each student)
2. Appendix D: Model Pieces (one for each student)
3. Tree branches/twigs (no longer than two feet in length, with a few branches stemming from it; one for each student)
4. Liquid glue (for each student)
5. Rice (one grain for each student)
6. Leaves cut from green construction paper- use Appendix D for a leaf outline (two leaves for each student)
7. Pipe cleaners (any color, about one to two inches long, for each student)
8. Small seashells -preferably conches (one for each student)
9. Crayons (for each student)
10. File folder labels- white (four for each student)

C. **Key Vocabulary**
   None

D. **Procedures/Activities**
1. Review the stages of the life cycle with the students.
2. Tell the students that yesterday they learned about the stages of the butterfly's life cycle. Today they are going to review those stages by making a model of each stage.
3. Hand out a branch or twig to each student. Have the students lay the branch on their desk. Tell the students that because caterpillars spend a lot of their time on plants and leaves, they are going to be using different parts of the branch to show the life cycle stages of the butterfly.
4. Ask the students what the first stage of the butterfly is. *(Egg)* Give each student a leaf cutout and have them glue it on one of the branches. Then have them put a grain of rice on the leaf. Tell the students that the grain of rice stands for the butterfly egg.

5. Ask the students what the next stage is. *(Larva)* The larva is the caterpillar. Ask the students what the caterpillar does all day. *(The caterpillar eats and grows.)* Tell the students that they are going to show this on their display. Give each student a leaf cutout. Have them tear a little piece off and glue the rest of the leaf somewhere on the branch. Hand them a piece of pipe cleaner and tell them to glue it to the edge of the leaf so it looks like the caterpillar is eating it.

6. Ask the students what stage comes after the larva or caterpillar stage. *(Pupa)* Give each student the mini-seashell and tell the students that this represents the pupa stage. Ask the students what the caterpillar's shell is called. *(Chrysalis)* Tell the students to try to glue the shell so the larger end is attached to the branch. If this doesn't work, you may need some modeling clay or thick glue to attach the shell.

7. Ask the students what the last stage in the life cycle of the butterfly is. *(Adult)* Tell the students that in the adult stage, the caterpillar becomes a butterfly. Tell them to cut out the butterfly on Appendix D and color it. Then they can fold it in half, unfold it, and glue to the branch.

8. Give each student four file folder labels. They are to label each stage of the butterfly's life cycle and attach them where they belong on the branch.

9. Read and discuss the poem on Appendix D. Cut out the poem and add a little bit of glue to the top, backside and attach it to the branch.

10. Tell the students that now that they have reviewed that life cycle stages of the butterfly, they are ready for the life cycle/butterfly quiz. Give each student the quiz in Appendix C.

E. *Assessment/Evaluation*

1. Monitor the students as they make a model of the life cycle stages of the butterfly.

2. The students will take the life cycle/butterfly quiz.

**Lesson Three: Frog Life Cycle (30 minutes)**

A. **Daily Objectives**

1. Concept Objective(s)
   a. Students will understand the sequence of the life cycle stages of butterflies, frogs, chickens, and plants.
   b. Students will understand the changes that take place as butterflies, frogs, chickens, and plants grow from birth to adult.

2. Lesson Content
   a. Life Cycles
      i. The life cycle: birth, growth, reproduction, death
      ii. Reproduction in plants and animals
         a) From frog to frog

3. Skill Objective(s)
   a. Students will identify and sequence the life cycle stages of a frog.

B. **Materials**

1. *Frogs* by Gail Gibbons or *The Life Cycle of a Frog* by John Williams
2. Appendix E: The Frog Life Cycle (one for each student)
3. Transparency of Appendix E
4. Crayons (for each student)
C. **Key Vocabulary**

1. **A tadpole** is the stage after the birth of the frog, with a tail and gills that disappear as the limbs develop before the adult stage is reached.

2. **Gills** are the area near the head of fish or water animals used for breathing.

D. **Procedures/Activities**

1. Ask the students what it means by the butterflies going through complete metamorphosis in their life cycle. (The butterflies look completely different from the time they are born to the end of their life.)

2. Tell the students that butterflies are not the only living thing that goes through metamorphosis during its life cycle; frogs do as well.


4. Give the students Appendix E and tell the students that this time, the worksheet has a box for each stage and they have to fill in the blanks under each box and draw a picture that goes with each stage of its life cycle.

5. Reread the story and as a class, discuss what belongs in each stage and complete the worksheet. Use the transparency of Appendix E to write down student answers and guide the students in drawing their pictures of what each sentence describes.

   a. First, the frog lays many jelly-like **eggs** in the water.
   b. Next, **tadpoles** hatch from the eggs. Like fish, they use **gills** to breathe.
   c. Then, their **back** legs begin to develop and their **gills** and **tails** start to disappear.
   d. Last, the adult frog has developed a pair of **lungs** to breathe and **front** legs for use on land.

6. Tell the students to put this paper in their folder and take it home to study. There will be mini-quiz the following day on what they learned today. Remind the students that they also need to bring their folders back so that they can add more information to it during the week.

E. **Assessment/Evaluation**

1. Students will identify the life cycle stages of the frog using Appendix E.

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**Lesson Four: Frog Life Cycle (40 minutes)**

A. **Daily Objectives**

1. **Concept Objective(s)**
   a. Students will understand the sequence of the life cycle stages of butterflies, frogs, chickens, and plants.
   b. Students will understand the changes that take place as butterflies, frogs, chickens, and plants grow from birth to adult.

2. **Lesson Content**
   a. **Life Cycles**
      i. The life cycle: birth, growth, reproduction, death
      ii. Reproduction in plants and animals
         a) From frog to frog

3. **Skill Objective(s)**
   a. Students will identify and sequence the life cycle stages of a frog.
   b. Students will design a model of the life cycle stages of a frog.

B. **Materials**

1. Appendix F: Frog Quiz (one for each student)
2. Modeling clay (about 1/2 cup for each student)
3. Shoeboxes (preferably child-size shoeboxes, one for each student)
4. Paintbrushes (one for each student)  
5. Green, white, and black or dark gray paint  
6. Blue, green, and brown construction paper  
7. Index cards (one for each student)  
8. Scissors (for each student)  

C. Key Vocabulary  
None  

D. Procedures/Activities  
1. Review the stages of the life cycle with the students.  
2. Tell the students that yesterday they learned about the stages of the frog's life cycle. Today they are going to review those stages by making a model of each stage.  
3. Tell each student to look at the worksheet they completed yesterday in class on “The Frog Life Cycle.” Tell the students that they are going to be put into groups and each person in the group is going to be making a model of one of the four stages, so that when they are finished, the group will have made the complete life cycle stages.  
4. Put the students into groups of four. Give each student in the group a number from one to four. Then, using the overhead transparency from yesterday's lesson on the frog's life cycle, put a number next to each box. Tell the students that in each group, students with the number one will make a model of the first stage— the frog eggs. The students in each group with the number two will make a model of the second stage— the tadpoles with gills and tails. Students with the number three will model the frog in the third stage. Students with the number four will model the frog in the fourth stage.  
5. Next, give each student some clay and tell him or her it may be difficult to create the frog at the stage they were given, but they are to do their best. You may need to give students some guidance as to how to start their frog, such as starting with a small ball of clay and working from there. When they are finished, they are to put their frog in the corner of their desk to dry. Give the students about ten minutes to do this.  
6. Tell the students to look at the stage they were assigned on their worksheet from yesterday. Where is the frog living at that stage? Using their shoebox, they are to create the environment the frog is in, in that stage. If they are creating stages one, two, and three, they should be lining the shoebox with blue construction paper to represent the water. They may use a little green construction paper to make any underwater plants. Students modeling the fourth stage should use green or brown construction paper to model land. Give the students no more than ten minutes to do this.  
7. Then, give each student an index card and have him or her write down what stage they are working on and in a few sentences, what happens to the frog at that stage. Remind the students to write nice and neat, because others will be reading it. Have the students glue the index card somewhere inside the shoebox where others can read it.  
8. Now that the clay has had a chance to dry, have the students paint their frogs. (If the clay needs longer to dry, have the students take the frog quiz instead.) The students may want to use white paint for the frog eggs, and then a little black paint or black marker somewhere on the egg for the black dot inside the frog egg. The tadpoles in stage two that look like fish should be a dark gray; you may add some water to the black paint to make it lighter. The tadpoles in stage three and four should be green.
9. When the paint has dried, have the students place their shoeboxes in order and have each student read his or her stage in the order that it happens in the life cycle.

10. Tell the students that now that they have reviewed that life cycle stages of the frog, they are ready for the quiz. Give each student the quiz in Appendix F.

E. **Assessment/Evaluation**
1. Monitor the students as they make a model of the life cycle stages of the frog.
2. The students will take the life frog quiz.

**Lesson Five: Chicken Life Cycle (30 minutes)**

A. **Daily Objectives**

1. Concept Objective(s)
   a. Students will understand the sequence of the life cycle stages of butterflies, frogs, chickens, and plants.
   b. Students will understand the changes that take place as butterflies, frogs, chickens, and plants grow from birth to adult.

2. Lesson Content
   a. Life Cycles
      i. The life cycle: birth, growth, reproduction, death
      ii. Reproduction in plants and animals
         a) From egg to egg with a chicken

3. Skill Objective(s)
   a. Students will identify and sequence the life cycle stages of a chicken.
   b. Students will piece together a mobile of the life cycle stages of a chicken.

B. **Materials**

1. *The Life of a Chicken* by Clare Hibbert or *Chicks and Chickens* by Gail Gibbons
2. Appendix G: The Chicken Life Cycle (one for each student)
3. Transparency of Appendix G
4. Hard boiled egg
5. Wire hangar (one for each student)
6. Feathers- yellow and white (enough for each student to have about two yellow and four white)
7. Glue (for each student)
8. Large index cards, with a hole punched in the middle of the top of each (three for each student)
9. Small index cards, with a hole punched in the middle top and bottom of each (three for each student)
10. Yarn (six- six inch pieces, for each student)
11. Orange crayon (for each student)
12. Scissors (for each student)

C. **Key Vocabulary**

1. The *yolk* is the yellowish part of the egg that contains food for the embryo.

D. **Procedures/Activities**

1. Review the life cycle stages with the students.
2. Tell the students that they are going to learn about the life cycle of a chicken next. The chicken does not go through a complete metamorphosis like the frog or the butterfly does. Instead, it simply grows in size like people do.
3. Read pages 1-21 of *The Life of a Chicken* by Clare Hibbert.
4. Give the students Appendix G and tell the students that they have to fill in the lines next to each picture to describe each stage of the chicken's life cycle.
Discuss what belongs on each line and complete the worksheet together. Use the transparency of Appendix G to write down student answers.

5. Show the students the parts of the egg using the hard-boiled egg. Tap the eggshell with your fingernail, but not hard enough to break it. Tell the students that it can take all day for the chick to break through its shell. Tell the students that the shell is hard enough to hold about eight pounds. Ask the students why they think the shell is this strong. (The egg needs to be hard enough so that it doesn't break when the hen sits on it.)

6. Show the students the egg white and the yolk. Tell the students that the yolk is the part where the chick develops.

7. Give each student Appendix H and tell them to color the beak and legs of the chicken and then cut out the pictures.

8. Next, give them the three large index cards. They are to glue each one to a large index card. Then tell them to cut around the pictures so that the index cards cannot be seen, only the pictures.

9. Give the students the two yellow and four white feathers. Tell the students to glue the yellow feathers on the chick and the white feathers on the chicken. Have them set these aside when they are done gluing to dry.

10. Give them the small index cards and tell them that each card of for a stage of the chicken's life cycle. They are to write at least one sentence about each stage of the life cycle on the index cards.

11. Give each student six strands of yarn and show them how to attach the yarn to the hanger and the index cards. They are to attach one end of each of the three strands of yarn to the hanger, spaced evenly apart. Then they are to attach the other ends of the yarn to the small index cards that describe each stage of the life cycle. At the bottom of those cards, they are to attach one end of the other three strands of yarn. At the other end of that yarn, they are to attach the pictures that match each stage of the life cycle.

12. Tell the students to take home their worksheet on "The Chicken's Life Cycle" or Appendix G and study for the quiz for the next day.

E. Assessment/Evaluation

1. Students will identify the life cycle stages of the chicken using Appendix G.

2. Monitor the students as they make a mobile of the life cycle stages of the chicken.

Lesson Six: Plant Life Cycle (30 minutes)

A. Daily Objectives

1. Concept Objective(s)
   a. Students will understand the sequence of the life cycle stages of butterflies, frogs, chickens, and plants.
   b. Students will understand the changes that take place as butterflies, frogs, chickens, and plants grow from birth to adult.

2. Lesson Content
   a. Life Cycles
      i. The life cycle: birth, growth, reproduction, death
      ii. Reproduction in plants and animals
         a) From seed to seed with a plant

3. Skill Objective(s)
   a. Students will identify and sequence the life cycle stages of a plant.

B. Materials

1. Appendix I: Chicken Quiz (one for each student)
2. Appendix J: The Plant Life Cycle (one for each student)
3. Transparency of Appendix J
4. Bean seeds, soaked in water for one day
5. Been seeds, soaked in water for a few days so that the roots are starting to show
6. Blossomed flower, one that shows each part that will be labeled today
7. How a Plant Grows by Bobbie Kalman

C. Key Vocabulary
1. The stigma is the part of the center of the flower where pollen is deposited during pollination.
2. The anthers are the upper end of the stamens of a flower that hold pollen.
3. The ovule is the part of the flower that becomes the seeds.
4. Pollen a powder-like material produced by the anthers and used in pollination.
5. Pollination occurs when the pollen from the anther reaches the stigma.
6. A seedling is a young plant that grows from a seed.
7. The shoot of a plant is the new growth on a plant.

D. Procedures/Activities
1. Review the life cycle stages with the students.
2. Tell the students that they are going to learn about the life cycle of a plant next. Ask the students if any of them have ever helped someone plant a garden.
3. Ask the students what they had to do in order to plant the garden. What did they have to do with the seeds? How did they get the seeds to grow into plants? Tell the students that they are going to take a closer look at how a seed becomes a plant.
4. Read pages 1-10 of the book How a Plant Grows by Bobbie Kalman.
5. While reading, label and discuss the plant's life cycle with the students using Appendix J. Use the transparency of Appendix J to write students answers. The sentences should read:
   a. Seeds are planted in soil, and with the right amount of water and the right temperature, they sprout.
   b. The seedling's roots grow down and its leaves grow up toward the sun.
   c. The adult plant grows and produces flowers that make seeds.
6. Show the students the seeds that have been soaked in water. Open a few of the seeds that have been soaked for a day and open it. Show the students the shoot and point out that the seed stores food that will help it grow. Then show them the root and tiny shoot of the seeds that have been soaked for a few days and are beginning to sprout.
7. Continue reading up to page 21 of How a Plant Grows and, with the students, and point out the parts of the flower on Appendix J. Show the students the real flower and briefly explain the job of each part, but they will not be tested over them.
8. Tell the students to take home their worksheet on "The Plant's Life Cycle" or Appendix J and study for the quiz for the next day.
9. Give the students the chicken quiz in Appendix I.

E. Assessment/Evaluation
1. Students will identify the life cycle stages of the plant using Appendix J.
2. Students will take the chicken quiz.
Lesson Seven: Plant Life Cycle (40 minutes)

A. Daily Objectives
   1. Concept Objective(s)
      a. Students will understand the sequence of the life cycle stages of butterflies, frogs, chickens, and plants.
      b. Students will understand the changes that take place as butterflies, frogs, chickens, and plants grow from birth to adult.
   2. Lesson Content
      a. Life Cycles
         i. The life cycle: birth, growth, reproduction, death
         ii. Reproduction in plants and animals
            a) From seed to seed with a plant
   3. Skill Objective(s)
      a. Students will identify and sequence the life cycle stages of a plant.
      b. Students will make a poster of the life cycle stages of a plant.

B. Materials
   1. Blue 12 inch x 18 inch construction paper (one for each student)
   2. Brown 8 ½ inch x 11 inch construction paper cut in half (one strip for each student)
   3. Pink construction paper cut in 4 inch x 4 inch squares (one for each student)
   4. Green pipe cleaners (three for each student)
   5. White pipe cleaners (three cut in half, for each student)
   6. Glue (for each student)
   7. Old clothes pins painted green (one for each student)
   8. Q-tips (two, cut in half, for each student)
   9. Yellow paint
   10. Butterfly or bee stickers (one for each student)
   11. Large seeds of any kind (one for each student)
   12. Appendix K: Plant Quiz (one for each student)
   13. Scissors (for each student)

C. Key Vocabulary
   None

D. Procedures/Activities
   1. Review the stages of the life cycle with the students.
   2. Tell the students that yesterday they learned about the stages of the plant's life cycle. Today they are going to review those stages by making a model of each stage.
   3. Give each student one sheet of large blue construction paper and one strip of small brown construction paper. Tell them to glue the brown strip to the bottom half of the blue construction paper so the blue paper's longest sides are vertical.
   4. Have the students glue the seed on the brown paper on the left hand side so that it looks like the seed in “planted in soil.”
   5. Then give each student six pieces of white pipe cleaner and three pieces of green pipe cleaner. Tell them that the white pipe cleaners represent the roots of the plant. They are to wind them around each other or bend them so that they look like roots. They are going to need two sets of “roots.” Tell them that the green pipe cleaners represent the stem of the plant. One pipe cleaner they can bend around for the seedling, the other two they can bend and twist together for the adult plant. Then they need to attach one of the sets of "roots" to the "seedling" and another set to the "adult plant." Glue the "seedling" in the middle of the blue
paper so that the "roots" are in the "soil" or brown paper. The "adult plant" needs to be glued on the right hand side of the paper, in the same way.

6. Using the green construction paper, have the students cut out leaves. Have them paste a few in the seedling and more on the adult plant.

7. Using the pink construction paper, have the student cut out petals and glue them to the top of the adult plant.

8. Tell the students to glue the clothespin in the center of the flower petals so that the open end of the clothespin is facing up.

9. Have them take the Q-tips, dip the cotton end in yellow paint, then wipe off excess paint. Glue two of these on each side of the clothespin so that the cut ends of the Q-tips are at the base of the clothespin.

10. Have the students label the parts of the plants: roots, stem, leaves, petals, stigma, anther, ovule, and pollen.

11. Give each student a butterfly or bee sticker to place on their poster near the flower as a reminder that these insects aid in pollination or reproduction.

12. Give students the plant quiz or Appendix K.

E. **Assessment/Evaluation**

1. Monitor the students as they make a model of the life cycle stages of the plant.

2. The students will take the plant quiz.

**Lesson Eight: Life Cycle Review (30 minutes)**

**A. Daily Objectives**

1. **Concept Objective(s)**
   
a. Students will understand the life cycle of all living things.

   b. Students will understand the sequence of the life cycle stages of butterflies, frogs, chickens, and plants.

   c. Students will understand the changes that take place as butterflies, frogs, chickens, and plants grow from birth to adult.

2. **Lesson Content**

   a. Life Cycles
      
      i. The life cycle: birth, growth, reproduction, death

      ii. Reproduction in plants and animals

      a) From seed to seed with a plant

      b) From egg to egg with a chicken

      c) From frog to frog

      d) From butterfly to butterfly: metamorphosis

3. **Skill Objective(s)**

   a. Students will work together to discuss the answers to questions about concepts taught throughout the unit.

**B. Materials**

1. Wide-ruled, loose-leaf notebook paper (one for each group of three)

**C. Key Vocabulary**

None

**D. Procedures/Activities**

1. Tell the students they are going to review for the test the next day by going over some questions that will be on the test.

2. Put the students into groups of three. Assign one student in each group to be a recorder and give that student a sheet of notebook paper.

3. Tell the students that you are going so ask some questions about everything they have learned in the life cycles unit. They are going to work with the people in their group to come up with the answers and write them down. When you are
finished with all the questions, you will gather all their papers and together you
will go over the answers to all the questions. Later, you will check the papers
and the group that gets the most answers correct will get some candy.

4. Tell the recorders to number their paper, on every other line, on the left hand side
from one to ten. Tell them that while you are not grading on spelling, you do
expect them to spell to the best of their ability.

5. Ask the students the questions about things learned throughout the unit and from
the test. Give the groups about one minute to discuss the answer and write it
down.

6. Tell the students to use their quizzes to study for the test that will be the next day.

E. Assessment/Evaluation
1. Monitor the students as they work together to answer the quiz questions. Check
the quiz answers and give the group with the highest score candy.

VI. CULMINATING ACTIVITY
A. Students will take the Life Cycle Test in Appendix M.

VII. HANDOUTS/WORKSHEETS
A. Appendix A: The Life Cycle
B. Appendix B: The Butterfly Life Cycle
C. Appendix C: Butterfly Quiz
D. Appendix D: Model Pieces
E. Appendix E: The Frog Life Cycle
F. Appendix F: Frog Quiz
G. Appendix G: The Chicken Life Cycle
H. Appendix H: Mobile Pieces
I. Appendix I: Chicken Quiz
J. Appendix J: The Plant Life Cycle
K. Appendix K: Plant Quiz
L. Appendix L: Quiz Answers
M. Appendix M: Life Cycle Test

VIII. BIBLIOGRAPHY
A. Been, Sherry. *If I Were a Frog*. Hong Kong: Guaranteed Trade Binding, 1996, ISBN 0-9705693-0-0


Appendix A

The Life Cycle

NAME: __________________________

A life cycle is ________________________________

______________________________________________________________________________.

All living things go through the stages of the life cycle, even if they go through them in different ways.

The _____ stages of the life cycle are:

1. ________________________
2. ________________________
3. ________________________
4. ________________________

Some animals or insects go through the life cycle and do not look the same at the beginning of their life and as adults. This is called ___________________________.

Appendix B

The Butterfly's Life Cycle

NAME: ________________________

Stage #1: egg _____________

Stage #2: larva _____________

Stage #3: pupa _____________

Stage #4: adult _____________

The butterfly goes through complete ___________________,
because it does not look the same at the beginning of its life

and as adults.

pictures by Microsoft Encarta Encyclopedia Standard 2004 by Microsoft Corporation
Appendix C

Butterfly Quiz

NAME: ______________________

Circle the letter of the correct answer.

1. What is the group of stages that a living thing goes through from the beginning of its life until the end, called?
   a. life history
   b. life cycle
   c. growing season

2. What is the order of the stages of the life cycle?
   a. growth, birth, death, reproduction
   b. reproduction, growth, death, birth
   c. birth, growth, reproduction, death

3. What is the order of stages that the butterfly goes through in its life cycle?
   a. adult, pupa, egg, larva
   b. larva, egg, adult, pupa
   c. egg, larva, pupa, adult

4. The butterfly goes through its life cycle looking completely different in its stage as a larva or caterpillar, and as an adult or butterfly. This is because it goes through complete ____________.
   a. metamorphosis
   b. cycles
   c. chrysalis
Appendix D

Caterpillars
by Aileen Fisher

What do caterpillars do?
Nothing much but chew and chew.

What do caterpillars know?
Nothing much but how to grow.

They just eat what by and by
will make them be a butterfly,

But that is more than I can do
however much I chew and chew.
The Frog's Life Cycle

NAME:_________________________________________________________

First, the frog lays many jelly-like ________ in the water.  

Next, ______________ hatch from the eggs. Like fish, they use _______ to breathe. 

Last, the adult frog has developed a pair of ________ to breathe and _________ legs for use on land. 

Then, their ________ legs begin to develop and their _________ and _________ start to disappear.
Frog Quiz

NAME:______________________

Circle the letter of the correct answer.

1. Birth, growth, reproduction, and death are all stages of the ______________________.
   a.  tadpoles
   b.  life cycle
   c.  larva

2. Both frogs and butterflies go through complete _________________.
   a.  metamorphosis
   b.  larva
   c.  pupa

3. After the frog eggs hatch, they become _________________________.
   a.  larva
   b.  tadpoles
   c.  pupa

4. While tadpoles use gills to breathe underwater, adult frogs use ________________________ to breathe on land.
   a.  gills
   b.  blowholes
   c.  lungs
Appendix G

The Chicken's Life Cycle

NAME: __________________________

First, _____________________________________________

_________________________________________________________________

Next, _____________________________________________

_________________________________________________________________

Last, _____________________________________________

_________________________________________________________________
Appendix I

Chicken Quiz

NAME: ______________________

Complete each sentence with the correct answer.

1. The set of stages that a living thing goes through from the beginning of its life until the end is called the __________ _____________.

2. The first stage of a chicken is the ________________.

3. The next stage of the chicken is a ________________.

4. The last stage, as an adult, is a _________________.

Appendix J

The Plant's Life Cycle

NAME: _______________________

Parts of the flower:

- **ovule** at base of stigma (holds the seeds)
- **anther** with **pollen** (male part)
- **stigma** (female part)
- **petals**

_______ are planted in soil and with the right amount of water and the right temperature, they sprout.

The seedling's _______ grow down and its _______ grow up toward the sun.

The adult plant grows and produces _______ that makes seeds.
Appendix K

Plant Quiz

NAME: ________________________

Use the words in the box to complete the sentences.

<table>
<thead>
<tr>
<th>seed</th>
<th>petals</th>
<th>reproduction</th>
<th>flowers</th>
<th>seedling</th>
<th>life cycle</th>
</tr>
</thead>
</table>

1. Birth, growth, ________________, and death are all parts of the life cycle.

2. A plant begins its life as a ________________.

3. Then the plant becomes a ________________.

4. An adult plant produces seeds in its _____________________.

Appendix L
Answer Keys for Quizzes

Butterfly Quiz

1. What is the group of stages that a living thing goes through from the beginning of its life until the end, called?
   b. life cycle

2. What is the order of the stages of the life cycle?
   c. birth, growth, reproduction, death

3. What is the order of stages that the butterfly goes through in its life cycle?
   c. egg, larva, pupa, adult

4. The butterfly goes through its life cycle looking completely different in its stage as a larva or caterpillar and as an adult or butterfly. This is because it goes through complete ______.
   a. metamorphosis

Frog Quiz

1. Birth, growth, reproduction, and death are all stages of the ___.
   b. life cycle

2. Both frogs and butterflies go through complete ___.
   a. metamorphosis

3. After the frog eggs hatch, they become ___.
   b. tadpoles

4. While tadpoles use gills to breathe underwater, adult frogs use ___ to breathe on land.
   c. lungs

Chicken Quiz

1. The set of stages that a living thing goes through from the beginning of its life until the end is called the life cycle.

2. The first stage of a chicken is the egg.

3. The next stage of the chicken is a chick.

4. The last stage, as an adult, is a chicken.

Plant Quiz

1. Birth, growth, reproduction, and death are all parts of the life cycle.

2. A plant begins its life as a seed.

3. Then the plant becomes a seedling.

4. An adult plant produces seeds in its flowers.
Life Cycle Test

NAME: __________________________

1. All living things go through a set of stages from the beginning of their life until the end. This is called a _________________.
   a. metamorphosis
   b. birth
   c. life cycle

2. Number the stages in order that they happen in living things.
   ____ death
   ____ growth
   ____ reproduction
   ____ birth

3. When an animal or insect goes through metamorphosis, they ____________.
   a. look very different at the beginning of their life and as adults
   b. use the sun to make food for themselves
   c. look the same when they are born and when they are an adult

4. What two animals go through complete metamorphosis?
   a. butterfly and chicken
   b. plant and chicken
   c. frog and butterfly

5. The stages in the life cycle of a butterfly are ___.
   a. larva, pupa, egg, adult
   b. egg, pupa, adult, larva
   c. egg, larva, pupa, adult

6. When the butterfly is in the larva stage, it is a ___.
   a. egg
   b. caterpillar
   c. butterfly

7. When the butterfly is in the pupa stage, it is a ___.
   a. chrysalis
   b. caterpillar
   c. larva
8. Tadpoles look like
   a. frogs
   b. turtles
   c. fish

9. What is an adult frog able to do?
   a. swim using its tail
   b. breathe underwater using its gills
   c. lay eggs

10. Which of the following is able to lay eggs?
    a. chicks
    b. chickens
    c. both chicks and chickens

11. Seeds are produced in what part of the plant:
    a. flowers
    b. petals
    c. roots

Number the stages in the order that they happen on the lines below each picture.

1. butterfly life cycle pictures by Microsoft Encarta Encyclopedia Standard 2004 by Microsoft Corporation
1. All living things go through a set of stages from the beginning of their life until the end. This is called a ___.
   c. life cycle

2. Number the stages in order that they happen in living things.
   _4_ death
   _2_ growth
   _3_ reproduction
   _1_ birth

3. When an animal or insect goes through metamorphosis, they ___.
   a. look very different at the beginning of their life and as adults

4. What two animals go through complete metamorphosis?
   c. frog and butterfly

5. The stages in the life cycle of a butterfly are ___.
   c. egg, larva, pupa, adult

6. When the butterfly is in the larva stage, it is a ___.
   b. caterpillar

7. When the butterfly is in the pupa stage, it is a ___.
   a. chrysalis

8. Tadpoles look like
   c. fish

9. What is an adult frog able to do?
   c. lay eggs

10. Which of the following is able to lay eggs?
    b. chickens

11. Seeds are produced in what part of the plant:
    a. flowers

Number the stages in the order that they happen on the lines below each picture.
### Appendix N

<table>
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<th>Plant</th>
</tr>
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<td><img src="image" alt="Plant diagram" /></td>
</tr>
</tbody>
</table>

References:  
- [Second Grade, Life Cycles](#)  
- [2005 Colorado Unit Writing Project](#)